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RECENT EXPERIENCES WITH RESPECT TO CENSUS CARTOGRAPHY IN THE COUNTRIES OF THE CENTRAL AFRICAN CUSTOMS AND ECONOMIC UNION (UDEAC)

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RECENT EXPERIENCES WITH RESPECT TO CENSUS CARTOGRAPHY IN THE COUNTRIES OF THE CENTRAL AFRICAN CUSTOMS AND ECONOMIC UNION (UDEAC)

INTRODUCTION

1. The following countries: Cameroon, Chad, the Congo, the Central African Republic, Gabon and Equatorial Guinea are members of the secretariat of the Central African Customs and Economic Union (UDEAC) whose headquarters is in Bangui. The UDEAC secretariat has a regional Population Studies Centre (CREP) which has now become the Department of Demography (DD). The CREP/DD whose task is to co-ordinate, harmonize and provide assistance with respect to population activities undertaken in the subregion was recently entrusted by the supreme organs of UDEAC with the task of simultaneously carrying out censuses in all the UDEAC countries in 1985 to permit better comparability of population data.

2. To attain the above objective some preliminary work has to be done including harmonizing all the major concepts and methods especially methods of data collection. That is why a document such as the current document which critically analyses the census cartography work done in the countries concerned could be useful.

3. The aim of ECA is to make constructive comments in order to help improve the quality of mapping work done in future censuses.

4. The errors made in the initial censuses carried out in the UDEAC countries are understandable because they were the very first large-scale data collection operations carried out by the young national census officials in their countries. It could even be said that on the whole they performed creditably despite their mistakes and they deserve praise for their efforts.

5. Because of the situation in Chad, it has been impossible to trace and therefore study the cartographic documents established before 1977 as part of preparations for the general population census which was interrupted afterwards. ECA has not yet had the time to study the mapping work done on the 1983 census of Equatorial Guinea. However, this will be done as soon as possible.

PART II (CONTINUED)

6. The following comments were made after considering the census mapping work of Cameroon (1975), the Congo (1974 and 1975), Gabon (1960) and the Central African Republic (1975).

7. All the above-mentioned countries used specially prepared maps in carrying out their general population (and sometimes housing) censuses. In many cases, the special maps permitted a complete coverage and rational organization of data collecting work after assessing beforehand the number of personnel, amount of equipment and supplies required for enumeration.

8. It should, however, be noted that in many cases considerable difficulties were encountered when it came to utilizing the special maps. The difficulties were generally caused by:

(a) The lack or poor programming of mapping activities

9. It is necessary to prepare a well-defined cartographic programme based on clear and accurate short-, medium- and possibly long-term objectives. Such programming should take into account available human, material and financial resources and establish the appropriate methodology, organizational structure and schedule; it should take into account the method of data collection envisaged. The following is an example of poor programming: when investigations were being carried out into the causes of the insurmountable difficulties which the organizers of the 1974 general population census in the Congo faced in putting enumerators in the field, a study was made of the documents on exploratory missions. When the documents on subdivision into enumeration zones were examined, they showed that there were no discrepancies between the method of collection in the enumeration zones or the Congolese rural area; there were however discrepancies between the method of collection and the preparatory work. Thus, when the preparatory cartographic work was being done in 1973-74 of the Congo, the officials of the Central Census Office learned all that they could from that experience. The results of a detailed assessment of the above-mentioned preparatory cartographic work by statistical units for example are not yet available but with an overall evaluation error of less than 10 per cent (see provisional results and results of the mapping work), such work can be considered satisfactory.

10. For some critical sectors such as certain Departements of Sangha in the Peoples' Republic of the Congo or the Vakanga Prefecture in the Central African Republic, it is the mapping work done after exploratory missions which should provide solutions, such as for example, reducing the size of the enumeration areas, reducing the ratio of enumerators to supervisors etc. If this method of programming is intended to use enumeration areas as clusters from which samples for post-census surveys will be established, emphasis will be placed mainly on the uniformity of the areas with more or less the same number of people so that when the areas are divided into zones there will be as little inter-cluster variation as possible. In this case provision should also be made for updating the sampling base. On the other hand, if greater emphasis is put on the organization of censuses and ease of identification of enumeration areas in the field, greater flexibility will be observed with respect to the size of the areas. Such mapping work should take into account the method decided upon for enumerating some types of population such as the pygmies of the north-east province of Gabon and the south-east province of Cameroon, nomads (Bororo Fulani in the Central African Republic or in northern Cameroon). If it is planned to collect information on village facilities for example, provision has to be made to computerize it (codification, capture, processing of questionnaires on villages).

(b) Some shortcomings in methodological documents

11. It should be pointed out first of all that administratively speaking, the presentation of the organizational structure of the teams is generally well done. However, even if such documents treat the inventory of inhabited areas in enough detail, they often do not indicate clearly the various methods or technical procedures to be used to assess the population in such areas and determine its spatial distribution. The principles to be followed in subdividing enumeration areas are often overlooked. Thus, such subdivision has often been done at the Central Census Office itself and this is generally the main reason for the differences in size of the enumeration areas created. The cartographer has lost sight of what should be his main concern, i.e. creating units that are quite homogenous in terms of types and sizes of population and therefore providing workloads that are more or less the same for all the enumerators.

12. In looking for the causes of the poor positioning of places by topographers (positional errors falling outside acceptable limits; such errors are sometimes so bad that they lead to an outright inversion of place positions) the following two points were noted:

(a) Some topographers' manuals indicate, under the chapter on map orientation, that since the sun is in the south at noon, it can be used to find bearings.

13. This passage should be corrected because although in regions north of the Tropic of Cancer like Europe, at true noon (another notion that should be clarified) the sun from a point of observation always ends up in the south regardless of the time of year, the same does not hold true for countries that are at the Equator or between the two Tropics as is the case of the UDEAC countries. Indeed for a given point of latitude observation l_i for example, the sun at true noon will end up towards the south from the winter solstice (21 December) until the time when it reaches the angle of declination l_i (the date T.. the sun then attains the zenith of the area). After attaining T, it will peak northward until it reaches a limit position at the summer solstice on 21 June when its declination is + 23° 27'. The sun will still be in the northern half of the meridian of the place at true noon as its declination decreases to l_i again. It will then move back to the southern half where it will remain until the date T.

14. In conclusion, therefore, unless astronomical or solar tables are used to calculate the period T (which in our case would only be of very relative importance) it would be simpler to advise topographers not to orientate their maps by the sun at noon. At that time of the day they should be advised to take their bearings using either a compass or observations of apparent details in the field which are represented on the map. The sun should be used to plot bearings only at sunrise and at sunset.

(b) As far as setting a map by compass is concerned, topographers should be told that once they are in the field, they should carry out a preliminary test to see whether a compass could be used in the particular area especially in the UDEAC subregion where the sub-soil is rich in magnetic ore deposits.

When for instance measurements are taken of the forward bearing and reverse bearing between two points in the area of operation and the two readings are compared, it could be seen whether or not there is magnetic interference deflecting the magnetic needle of the compass from the correct direction (towards the magnetic north).

15. With respect to the same chapter, documents often do not give any indications about magnetic declination yet understanding that notion is crucial to an accurate orientation of maps by compass.

(c) On village files

16. What governments describe as villages, hamlets, or districts often do not correspond to anything at all in the field and this causes total confusion which makes it difficult to publish the village directory because the government definition of village covers stockbreeders' camps, mining camps, fishermens' camps, hamlets of farmers, camps of Fulani herdsmen and nomads, farms, plantations, agricultural stations, isolated households etc.. in a nutshell, any inhabited area.

(d) On the geographical code

17. Not all the countries had a single geographical code and such codes were very often not flexible enough to be used for a very long time.

(e) On the use of post-enumeration cartography in the analysis and publication of census data

18. The full potential of mapping was not exploited in the analysis and publication of census data. It should be considered crucial to have an accurate cartographic base for studies on population development as well as for the analysis of results within the various administrative units of a country.

19. For example, in order to analyse the spacial dynamics of the population factor within regions (rural/urban dynamics), between regions or nationalities, a picture-file would make it possible to consider all the data within a picture and facilitate a comparative examination of the population strucure according to areas of residence and age categories; this would bring about a better understanding of population development factors in general and the differences between rural and urban areas.

20. Such studies could be of great use to the countries of Central Africa.

MAIN RECOMMENDATIONS

1) A clear and accurate mapping programme should be established.

2) When the schedule of field operations is being prepared, due account should be taken of weather conditions and factors that cause communications problems.

3) Documents prepared (maps, photographs, plans, sketches, etc..) should be kept in good condition because failure to do so would mean beginning the mapping operations all over again whenever censuses are conducted. Many African countries have often had to do so.